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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/862,523 | 05/22/2001 | Steven Derrick Clynes | TI-32423 | 1218 |

23494 7590 02/13/2008
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| EXAMINER | |
|---|---|
| NGUYEN, LUONG TRUNG | |
| ART UNIT | PAPER NUMBER |
| 2622 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 02/13/2008 | ELECTRONIC |

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* STEVEN DERRICK CLYNES,
ZHILIANG JULIAN CHEN, and ANLI LIU

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Appeal 2007-3052
Application 09/862,523
Technology Center 2600

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Decided: February 11, 2008

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Before JOSEPH F. RUGGIERO, ANITA PELLMAN GROSS, and JOHN A. JEFFERY, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

1 Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1, 3-13, 17, 18, and 20. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## STATEMENT OF THE CASE

Appellants invented a system that filters pixel defects from CMOS imagers. Specifically, a process pixel is compared to adjacent pixels to determine whether the process pixel value deviates significantly from an adjacent pixel value. The results of such a comparison dictate whether error correction is needed.[1] Claim 1 is illustrative with the relevant limitation in dispute emphasized:

1. A method of pixel filtering for CMOS imagers, comprising:

scanning each of a plurality of pixels within a block;

designating a pixel as a process pixel, the process pixel having adjacent pixels, the process pixel having a process pixel value, each of the adjacent pixels having an adjacent pixel value;

comparing the process pixel value to at least one adjacent pixel value; and

*detecting a lowest pixel value among the adjacent pixels*.

The Examiner relies on the following prior art references to show unpatentability:

| | | |
|---|---|---|
| Watanabe | US 6,002,433 | Dec. 14, 1999 |
| Chen | EP 1 045 578 A2 ("EP '578") | Oct. 18, 2000 |

1. Claims 1, 3-11, 17, 18, and 20 stand rejected under 35 U.S.C. § 102(a) as being anticipated by EP '578.
2. Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over EP '578 and Watanabe.

[1] *See generally* Spec. 5:2-6:19.

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Brief and the Answer for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments which Appellants could have made but did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

## OPINION

### *The Anticipation Rejection*

We first consider the Examiner's rejection of claims 1, 3-11, 17, 18, and 20 under 35 U.S.C. § 102(a) as being anticipated by EP '578. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984); *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554 (Fed. Cir. 1983).

The Examiner has indicated how the claimed invention is deemed to be fully met by the disclosure of EP '578 (Ans. 3-7). Regarding the independent claims, Appellants argue that EP '578 does not teach or suggest detecting the lowest pixel value *among the adjacent pixels* as claimed. According to Appellants, EP '578 "compares a primary pixel to adjacent pixels, but does not compare *adjacent pixels to each other* to determine a lowest value among the adjacent pixels" (App. Br. 7-8; emphasis added).

The Examiner notes that the system of EP '578 compares a process pixel value B to adjacent pixel values A and C as shown in Figures 3a

through 3j. According to the Examiner, Figure 3a of EP '578 "clearly implie[s]" that one of the adjacent pixel values (A) is determined to be the lowest pixel among the adjacent pixels (Ans. 9).

Since the Examiner's prima facie case of anticipation for the other recited limitations of the independent claims is undisputed, the issue before us is quite narrow. Specifically, the issue before us is whether EP '578's comparison of the luminance value of pixel B with that of its adjacent pixels A and C -- where one of the adjacent pixels has a value lower than its counterpart adjacent pixel -- anticipates the disputed limitation calling for detecting a lowest pixel value among the adjacent pixels. For the reasons that follow, we find that it does.

EP '578 discloses a method for filtering defective picture elements in digital imagers that utilizes a defective-pixel filter 34. To this end, the luminance value of a given middle pixel (B 52) is compared with the luminance values of its neighboring pixels (A 50) and (C 54). If the luminance value of middle pixel B 52 deviates from that of its neighboring pixels by more than a predetermined threshold (as shown in Figures 3g-3j), middle pixel B 52 is considered defective. In such a case, the luminance value of the defective pixel is replaced with an interpolated luminance value based upon the values of the neighboring pixels A and C (EP '578, ¶¶ 0024-26; Figures 3a-3j).

Based on this functionality, we agree with the Examiner (Ans. 9) that the system of EP '578 not only compares the process pixel value (B) to its adjacent pixels (A and C), it also determines the lowest pixel value among the adjacent pixels as claimed. As shown in Figures 3a through 3j, the relative luminance values of the adjacent pixels A and C are clearly shown

with different relative magnitudes. Simply put, one of the adjacent pixels has a value lower than the other. In some cases, adjacent pixel A has a value that is lower than pixel C (Figures 3a, 3c, 3f, 3g, and 3j). In other cases, however, adjacent pixel C has a lower value than pixel A (Figures 3b, 3d, 3e, 3h, and 3i). But in any of these cases, the lower pixel value among the adjacent pixels A and C is, in fact, the lowest value among those adjacent pixels. The limitation is therefore fully met by EP '578.

For the foregoing reasons, and since Appellants have not disputed the Examiner's prima facie case of anticipation for the other recited limitations of independent claims 1 and 17, we will sustain the Examiner's rejection of those claims as well as dependent claims 3-11, 18, and 20 which fall with claims 1 and 17.

*The Obviousness Rejection*

Regarding the Examiner's rejection of claims 12 and 13, we find that the Examiner has established at least a prima facie case of obviousness of those claims that Appellants have not persuasively rebutted. Specifically, the Examiner has (1) pointed out the teachings of EP '578, (2) noted the perceived differences between this reference and the claimed invention, and (3) reasonably indicated how and why EP '578 would have been modified in view of the teachings of Watanabe to arrive at the claimed invention (Ans. 7-8). Once the Examiner has satisfied the burden of presenting a prima facie case of obviousness, the burden then shifts to Appellants to present evidence or arguments that persuasively rebut the Examiner's prima facie case. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Since Appellants did not

rebut the Examiner's prima facie case of obviousness, the rejection is therefore sustained.

## DECISION

We have sustained the Examiner's rejections with respect to all claims on appeal. Therefore, the Examiner's decision rejecting claims 1, 3-13, 17, 18, and 20 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

tdl/gvw

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